

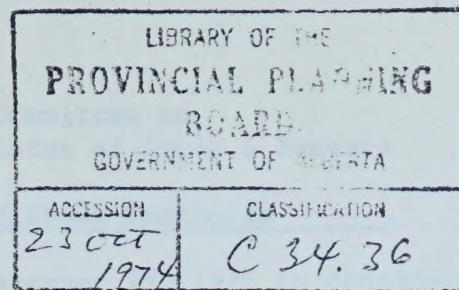
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## Coal Branch Committee.

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Report of the Coal Branch Committee to H  
on. Allan A. Warrack, Minister of 1  
  
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Appendix A - Schedule of recommended sale prices for lots in  
Robb, Plan 5838 RS

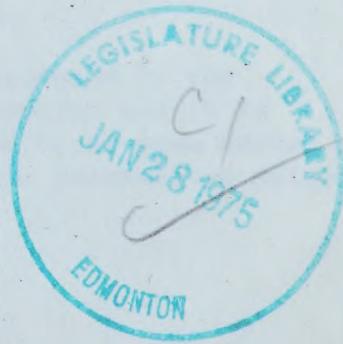
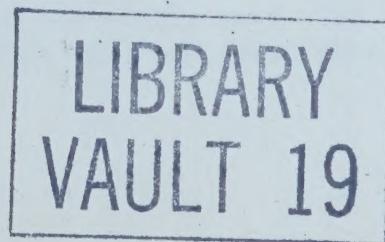
Appendix B -- Plan 5838 RS Robb showing lot categories A to E

Appendix.C - Sketch Plan of Lower Robb, red lines indicate  
100 year flood level

Appendix D - Sketch Plan of Cadomin, red lines indicate 100 year flood level

## Appendix E - Water Resources Report on Floodplain Study of McLeod River at Cadomin

## Appendix F - Water Resources Recommendation concerning Lower Robb



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PROTECTION ZONE

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Report of Coal Branch Committee to  
Hon. Allan A. Warrack, P.Ag., Minister of Lands & Forests  
and  
Hon. R. Dowling, Minister Without Portfolio

The Committee held a meeting on December 19, 1972 to consider several matters pertaining to Robb and Cadomin and wishes to submit the following report and recommendations to the Ministers.

1. Purchase Price for Lots in Robb - Plan 5838 RS

The Committee reviewed the prices which have been recommended by appraisers of the Department of Lands and Forests. A list of these prices appears as Appendix A later in this report. It is noted that prices range from \$140 to \$915 for residential lots based on size, location and quality. These lots were divided into five categories and value per square foot was attached to each category as follows:

A lots - 3¢ per sq. ft.  
B lots - 2.75¢ per sq. ft.  
C lots - 2.5¢ per sq. ft.  
D lots - 2.25¢ per sq. ft.  
E lots - 2.0¢ per sq. ft.

The three commercial lots covering the hotel, store and service station were valued on the basis of \$1,500 per acre.

Following calculation of values on this basis, all lot prices were reduced by 1/8 to provide for recovery of basic land value and expenditures which are as follows:

1. Survey Cost	\$11,792.06
2. Street clearing, grading and gravelling	3,000.00
3. Estimated cost to subdivision for portion of relocation of North Western Pulp and Power Ltd. road	10,600.00
4. Land value 62.53 acres @ \$85.00 per acre	5,315.05
5. Administration charges (10%)	3,070.71
<b>TOTAL</b>	<b>\$33,777.82</b>

(The actual amount that would be recovered if every lot was sold at the recommended prices in Appendix A would be \$33,400.00.)

The area in which these lots are located is considered by the committee to be a high demand area especially for recreation and it is the committee's opinion that if these lots were exposed to an open market situation they would sell for considerably more than the recommended prices. It is our opinion that the prices are very reasonable.



The Public Lands Act provides that public land must be sold at a fair market value, and therefore the committee recommends that the lot prices which appear in the right hand column of Appendix A be approved. It is recognized that there are retired people on fixed incomes living in this subdivision and it is therefore further recommended that purchasers be allowed to purchase on time, with a downpayment of 25% of the purchase price and five years to pay the balance.

If these lot prices are approved, such prices will remain in effect until August 31, 1974. Any lots not sold by that date would be subject to reappraisal to determine the market value at the time of sale.

2. Relocation of North Western Pulp and Power Road

It is estimated that the total cost to the government for the relocation of this road will be \$16,000. Of this amount, it is estimated that the portion attributable to Robb - Plan 5838 RS is \$10,600. That portion of the former N.W.P.P. road has now become a street, the creation of which was necessary to conform to Provincial Planning requirements so that portion of Robb could be included in the overall subdivision under Plan 5838 RS. This was necessary to make it possible for the residents of this part of Robb to purchase their lots. Since this is a direct charge to the government, it is the committee's view that this amount should be included in the cost of the subdivision. This amount is included in the recommended lot prices which appear in Appendix A.

3. Residency in Lower Robb and Cadomin

It is considered that the Environment Conservation Authority hearings and subsequent recommendations of the Authority may assist government in determining if permanent settlement should be encouraged at Lower Robb and Cadomin or whether these two areas should be maintained primarily for recreational cottage subdivisions. Pending the outcome of the E.C.A. hearings the committee recommends as follows:

When the holder of a lease for permanent residence in these two areas moves out, he be permitted to assign only for recreational cottage purposes. The committee further recommends that no relocation to the upper bench in Cadomin be permitted until the recommendations of the Environment Conservation Authority are made to government following the hearings and until a subdivision has been approved by Provincial Planning.

4. Subletting in Cadomin and Lower Robb

The committee recommends that pending the outcome of the E.C.A. hearings, holders of leases for recreational cottage purposes not be allowed to sublet for permanent residence purposes.

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## APPENDIX A

Bloc	Lot	Category	Square Foot	Price Per Square Foot	Total Price	Reduced by 1/8 and Rounded Off to Nearest \$5.00
1	1	C	41,820	\$ .025	\$ 1,045.50	\$ 915.00
	2	C	11,323	.025	283.08	250.00
	3	C	9,319	.025	232.98	205.00
	4	D	12,517	.0225	281.63	245.00
	5	D	11,570	.0225	260.32	230.00
	6	D	14,797	.0225	332.93	290.00
	7	D	13,002	.0225	292.55	255.00
	8	D	12,804	.0225	288.09	250.00
	9	E	12,249	.02	244.98	215.00
	10	E	14,958	.02	299.16	260.00
	11	E	10,464	.02	209.28	180.00
	12	E	12,596	.02	251.92	220.00
	13	E	12,438	.02	248.76	220.00
	14	E	14,168	.02	283.36	250.00
	15	C	14,663	.025	366.58	320.00
	16	C	11,453	.025	286.33	250.00
	17	C	14,755	.025	268.88	235.00
2	1	A	14,245	\$ .03	\$ 427.35	\$ 375.00
	2	A	14,246	.03	427.38	375.00
	3	A	14,246	.03	427.38	375.00
	4	A	14,246	.03	427.38	375.00
	5	A	13,200	.03	396.00	350.00
	6	A	20,560	.03	616.80	540.00
	7	A	22,047	.03	661.41	580.00
	8	B	19,648	.0275	540.32	470.00
	9	B	20,164	.0275	554.51	485.00
	10	B	20,188	.0275	555.17	485.00
	11	C	15,797	.025	394.93	345.00
	12	C	17,785	.025	444.63	390.00
	13	C	12,182	.025	304.55	265.00
3	1	B	13,671	\$ .0275	\$ 375.95	\$ 330.00
	2	B	13,302	.0275	365.80	320.00
	3	B	10,542	.0275	289.90	255.00
	4	B	10,697	.0275	294.17	255.00
	5	B	10,454	.0275	287.49	250.00
	6	B	9,044	.0275	248.71	220.00
	7	B	9,627	.0275	264.74	230.00
	8	B	12,560	.0275	345.40	300.00
	9	A	12,559	.03	376.77	330.00
	10	A	12,559	.03	376.77	330.00
	11	B	12,559	.0275	345.37	300.00
	12	B	12,559	.0275	345.37	300.00
	13	B	12,446	.0275	342.27	300.00
4	1	A	13,088	\$ .03	\$ 392.64	\$ 345.00
	2	A	13,200	.03	396.00	350.00
	3	A	13,200	.03	396.00	350.00
	4	A	13,200	.03	396.00	350.00
	5	B	13,200	.0275	363.00	320.00
	6	C	17,923	.025	488.08	425.00
	7	C	10,360	.025	259.00	230.00
	8	A	27,443	.03	823.29	720.00
	9	C	12,419	.025	310.48	270.00
	10	C	9,277	.025	231.93	290.00
	11	C	10,172	.025	254.30	220.00
	12	C	18,166	.025	454.15	395.00
	13	E	11,240	.02	224.80	195.00
	14	E	10,778	.02	215.56	190.00
	15	E	9,399	.02	187.98	155.00
	16	E	8,706	.02	174.12	150.00
	17	E	11,905	.02	238.10	210.00
	18	E	11,771	.02	235.42	205.00
	19	E	13,518	.02	270.36	235.00



5. Retirement in Cadomin and Lower Robb

When the holder of a recreational cottage lease retires and wishes to reside in his premises permanently, the committee recommends that he be permitted to do so and that the purpose of the lease be changed accordingly. However, if the retired person subsequently assigns such a lease, the permitted use would be for recreational purposes.

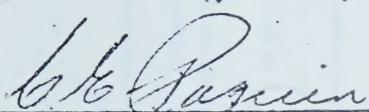
6. Citizenship and Residence in the Province

The committee recommends that any new lease issued or any assignment of lease in the Coal Branch area be restricted to Canadian citizens who are residents of Alberta.

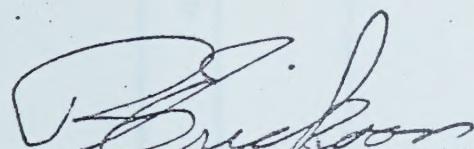
7. Conclusion

The committee is of the opinion that these recommendations will accommodate the needs of the people now living in Robb, Lower Robb and Cadomin until the E.C.A. hearings are held. Following the hearings, if changes in policy and planning for this area are indicated relative to allowing unrestricted permanent residence in Lower Robb and Cadomin, consideration can then be given to implementing such changes.

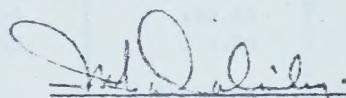
The committee respectfully requests approval of the recommendations in this report.



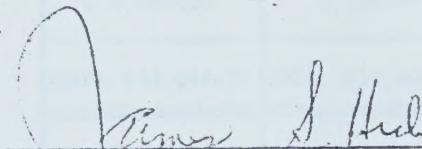
C.E. Paquin, P.Ag.,  
Acting Director of Lands,  
Department of Lands & Forests.



R.R. Erickson,  
Deputy Director of Planning  
and Research,  
Provincial Planning Branch.



M.J. Dolinsky,  
Chief Planning Engineer,  
Department of Highways.



Dr. J.S.T. Hrabi,  
Associate Deputy Minister,  
Department of Education.



Block	Lot	Category	Square Foot	Price Per Square Foot	Total Price	Reduced by 1/8 and Rounded Off to Nearest \$5.00	
5	1	A	15,477	\$ .03	\$ 464.31	\$ 405.00	
	2	A	18,767	.03	563.01	490.00	
	3	A	13,683	.03	410.49	360.00	
	4	A	18,533	.03	555.99	485.00	
	5	A	13,836	.03	415.08	360.00	
	6	A	13,552	.03	406.56	355.00	
	7	A	15,456	.03	463.68	405.00	
	8	A	17,441	.03	523.23	460.00	
6	1	E	13,952	\$ .02	\$ 279.04	\$ 245.00	
	2	E	10,268	.02	205.36	180.00	
	3	E	9,017	.02	180.34	160.00	
	4	E	9,664	.02	193.28	170.00	
	5	E	8,867	.02	177.34	155.00	
	6	E	7,958	.02	159.16	140.00	
	7	E	9,298	.02	185.96	160.00	
	8	E	11,604	.02	232.08	200.00	
	9	E	10,652	.02	213.04	185.00	
	10	E	11,538	.02	230.76	200.00	
7	1	E	12,826	\$ .02	\$ 256.52	\$ 225.00	
	2	E	8,892	.02	177.84	155.00	
	3	E	12,630	.02	252.60	220.00	
	4	C	9,919	.025	247.98	215.00	
	5	C	10,430	.025	260.75	230.00	
	6	C	7,824	.025	195.60	170.00	
	7	E	16,069	.02	321.33	280.00	
8	1	E	11,042	\$ .02	\$ 220.84	\$ 195.00	
	2	C	11,431	.025	285.78	250.00	
	3	C	13,714	.025	342.85	300.00	
	4	C	9,602	.025	240.05	210.00	
	5	C	7,618	.025	190.45	165.00	
	6	C	9,625	.025	240.60	210.00	
9	1				\$ 3,135.00	\$ 2,745.00	Hotel
	A	E	11,505	\$ .02	\$ 230.10	\$ 210.00	Store
	B				\$ 1,005.00	\$ 880.00	Service Station
	C				\$ 2,400.00	2,100.00	
					TOTAL \$38,067.71	TOTAL \$33,400.00	







SHOWING  
SUBDIVISION

S.W. 1/4 SEC. 23, N.W. 1/4 SEC. 14, and N.E. 1/4 SEC. 15,  
TP. 49 - RGE. 21 - W. OF 5 TH M.

ROBB

R. ARMFELT, A.L.S. 1971

TECH. DIV.  
No. 2833 GEN.



PLAN  
SHOWING  
ESTABLISHMENT OF BOUNDARIES

IN  
Sec's. 10, 11, 14 and 15 - Tp. 49 - Rge. 21 - W. 5 th.M.  
R. Armfelt, A.L.S. 1971 Scale: 1 in. = 200 ft.

Measurements shown are station measurements  
from points defined in the above table.  
Master points defined are shown thus: MP  
Station numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 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Sec 3  $\rightarrow$  17.1223-W5

CADMIN

UPPER BENCH.











## THE MCLEOD RIVER AT CADOMIN FLOODPLAIN STUDY

OCTOBER 1972

## 1. Investigations

In October 1972 a floodplain study was carried out on the McLeod River through Cadomin by the Water Resources Division of the Department of the Environment at the request of the Department of Lands and Forests.

Seven cross-sections were surveyed along a 2.2 mile reach extending from the Portland Cement Rock Quarry downstream to the north end of the townsite. To help supplement the surveys, three townspeople were interviewed concerning historic high water levels.

Mr. N. Clyburn, retired, who has lived in Cadomin since 1919, indicated that there has never been any floodwater high enough to surround any house presently standing on the townsite on the left bank, or to cover the railway tracks on the right bank. He thought the highest flood occurred in 1969 but could not supply any definite high water marks.

Mrs. Ferguson, who has operated a rooming house in Cadomin since 1938, agreed that the highest flood occurred in August 1969 and pointed out a highwater mark 4 inches below her door sill (elevation 4979.4). She also said that her house (Building #86 on mosaic, Lot #83 on boundary plan) which is probably the lowest in town, had otherwise never been subject to flood waters.

Mr. R. W. Malloy, a retired miner who has lived in the area since 1915, also indicated the August 1969 flood to be the highest he had ever seen, and supplied a highwater mark (100' upstream of Building #40 on mosaic), which was surveyed in at X-section #6 (elevation 4964.3). He



also pointed out that the channel at section #6 is quite narrow probably because of a shale outcrop about 5 feet below ground surface and 5 feet above low water level. This shale looks to be similar to the shale exposed on both sides of the valley wall.

A visual inspection of the site seemed to confirm the fact that most of the townsite area had never been subjected to over-the-bank flooding. The steep slope of the river (about 60 feet per mile) probably facilitates rapid and easy removal of water through the townsite so that the greater danger during flood peaks would probably be considerable bank erosion near the upstream end of town.

## 2. Results

### A. Profiles

Figure 1 shows highwater, low water and bed profiles. The bed and low water elevations surveyed in the field were plotted vs distance between cross-sections as taken from  $1'' \approx 100'$  air photo mosaics. Two measured highwater marks were then plotted and using field observations a highwater profile which represents the highest recorded flood level (1969), was extrapolated over the whole study reach.

### B. Cross-sections

The seven cross-sections are plotted on Figures 2 and 2A. Sections 1 through 4 show the channel upstream of the townsite, sections 5 through 7 are located in the townsite, the town being located on the left bank flats. The highwater marks shown on the cross-sections were transferred from Figure 1.



### C. Maximum Flood Discharge

A maximum flood discharge was computed using the slope-area-method through the reach from cross-section 1 to cross-section 2. The computations (Appendix A) indicate a maximum recorded flow (1969) of 7,770 cfs or a unit peak discharge of 89 cfs/square mile.

### 3. Analysis and Discussion

Very few streamflow records are available for comparison to the McLeod River drainage basin above Cadomin; however, the nearest information seems to substantiate the calculated peak discharge of 7,770 cfs. Shortly after the 1969 flood, a study of peak discharge was made on 3 small creeks\* (Tri-Creek Basin) located in part of the McLeod River catchment area about 10 miles downstream of Cadomin townsite and on the Fiddle River† catchment area immediately to the north-east of the drainage basin of the McLeod River above Cadomin. The unit peak discharges of these four streams, all of which appear to have headwaters within the storm center, are compared with the McLeod River as shown on Table 1. The unit peak discharge of 89 cfs/square mile at Cadomin appears high, but a study of the drainage basin characteristics tends to justify a high value. About 75% of the drainage basin above Cadomin and about 50% of the Fiddle River drainage basin is untimbered rock, whereas the other areas have almost 100% forest cover.

In order to determine the frequency of the 1969 flood in Cadomin, additional information had to be used from records of adjacent streams. Figures 3A to 3C show maximum mean daily flood frequency curves for the

\*M. O. Spitzer, Water Survey of Canada

†K. O. Thorsen, Water Survey of Canada



Wildhay River near Hinton, Fiddle River above Morris Creek, Wampus Creek near Hinton, and the McLeod River above Embarras River confluence. A 100-year flood discharge was determined for each of these streams and then a corresponding 100-year discharge was computed for the McLeod River at Cadomin using the following equation:

$$\frac{Q_1}{Q_2} = \left(\frac{A_1}{A_2}\right)^{0.8}$$

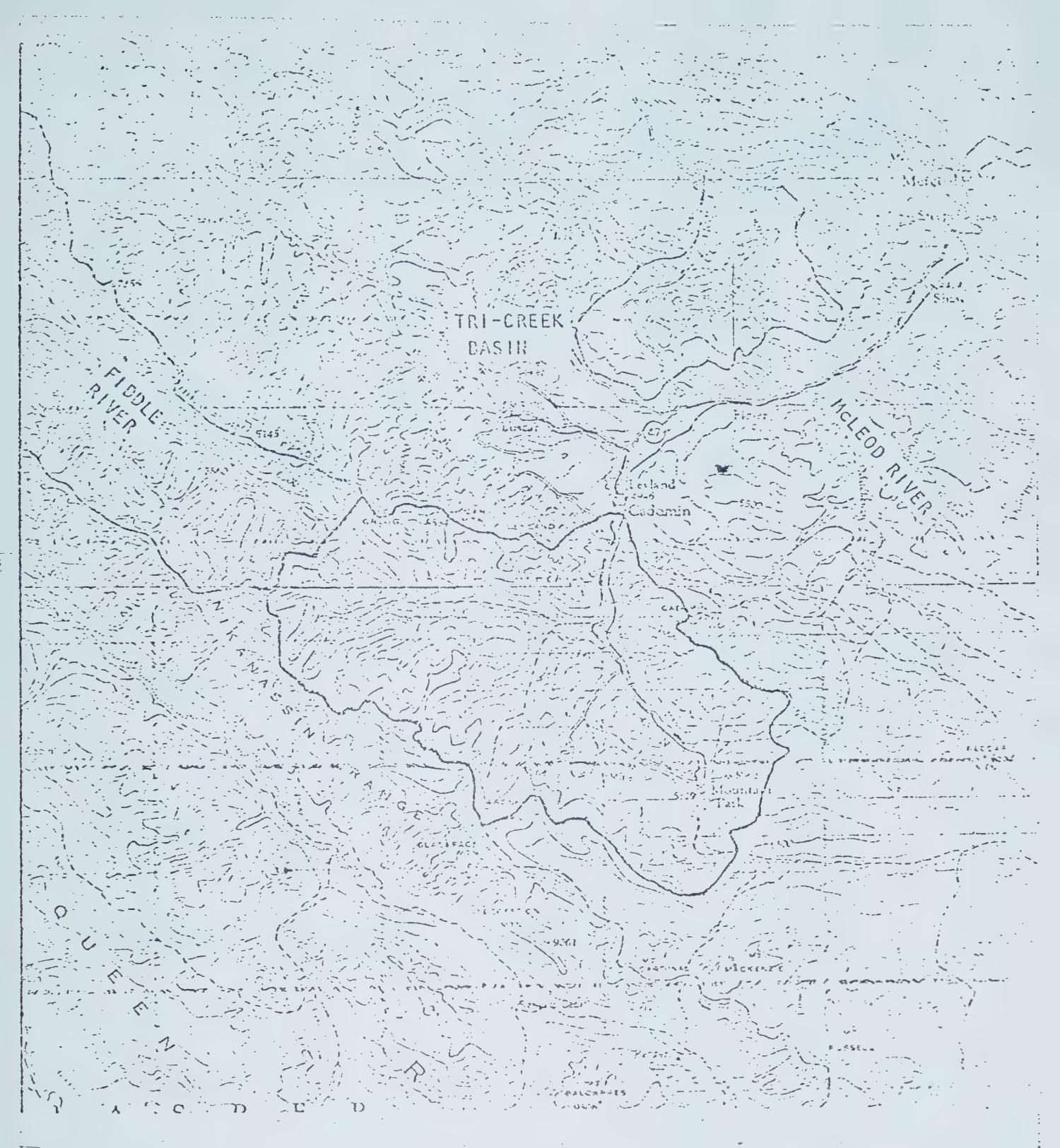
Table II shows the comparative areas and discharges for each stream and indicates a maximum mean daily flood at Cadomin of about 5000 cfs. During the same flood, the maximum mean daily discharge which occurred about 120 miles further downstream on the McLeod River, reached 32,000 cfs with an instantaneous peak of 55,500 cfs, which was considered to be close to a 100-year flood.

#### 4. Conclusions

The validity of each of the unit peak discharges shown in Table I must be considered equal because all figures were computed using the slope-area-method. With the exception of Eunice Creek, flows for the other streams seem to be in the same range, so it is fair to conclude that the 1969 peak discharge of 7,770 cfs in the McLeod River at Cadomin is also reasonable.

From a comparison of 1969 peak flows to 100-year flood discharges for the streams shown in Table II it can also be concluded that the 7,770 cfs flow in the McLeod River at Cadomin is at least a 1 in 100 year flood.





### CADOMIN FLOOD PLAIN STUDY

MCLEOD RIVER DRAINAGE BASIN UPSTREAM OF CADOMIN

Drainage area = 87 square miles



Stream	Drainage Area sq. mi.	Peak Discharge cfs	Unit Peak Discharge cfs/sq. mi.
McLeod River at Cadomin	87	7,770	89
Eunice Creek	6.5	290	45
Deerlick Creek	5.8	420	72
Wampus Creek	10.9	720	66
Fiddle River above Morris Creek	78	6,000	76

TABLE II

Stream	Drainage Area sq. mi.	100-Year Discharge mean daily cfs	Corresponding 100-Year Discharge McLeod River at Cadomin (D.A. = 87 sq. mi.) mean daily cfs
Wildhay River	373	10,000	3,170
Fiddle River	78	7,000	7,630
Wampus Creek	10.9	900	4,730
McLeod River	1000	34,000	4,820



CADOMIN FLOODPLAIN STUDY

PEAK FLOOD (1969) USING SLOPE AREA METHOD  
D.A. = 87 Square Miles

$$X\text{-Sec } \#1 \quad A = 857 \text{ sq. }' \quad p = 290 + 3 + 7 = 300'$$

$$R = 857 \div 300 = 2.85 \quad R^{2/3} = 2.01 \quad n = .035$$

$$\text{Therefore } K_1 = 1.49 \times \frac{857}{.035} \times 2.01 \\ = \underline{73,459}$$

$$X\text{-Sec } \#2 \quad A = 815 \text{ sq. }' \quad p = 270 + 6 + 5 = 281$$

$$R = 2.90 \quad R^{2/3} = 2.03 \quad n = .035$$

$$\text{Therefore } K_2 = 1.49 \times \frac{815}{.035} \times 2.03 \\ = \underline{70,500}$$

$$K_{ave} = (73,459 \times 70,500)^{1/2} \\ = \underline{71,990}$$

$$\text{Slope}_{ws} = \frac{5075.70 - 5023.54}{4500} = .0116$$

$$\text{Therefore } Q_{1-2} = K_{ave} s^{1/2} = 71,990 \times (.0116)^{1/2} \\ = \underline{7,770 \text{ cfs}}$$



CADOMIN FLOODPLAIN STUDY

MAXIMUM MEAN DAILY FLOOD (1960) USING  $\frac{Q_1}{Q_2} = \left(\frac{A_1}{A_2}\right)^{0.8}$   
 D.A. = 87 Square Miles

Wildhay River near Hinton D.A. = 373 square miles

100-year flood = 10,000 cfs

- Corresponding 100-year flood at Cadomin

$$= \left(\frac{87}{373}\right)^{0.8} \times 10,000 = 3,170 \text{ cfs}$$

Fiddle River near Morris Creek D.A. = 78 square miles

100-year flood = 7,000 cfs

- Corresponding 100-year flood at Cadomin

$$= \left(\frac{87}{78}\right)^{0.8} \times 7,000 = 7,630 \text{ cfs}$$

Wampus Creek near Hinton D.A. = 10.9 square miles

100-year flood = 900 cfs

- Corresponding 100-year flood at Cadomin

$$= \left(\frac{87}{10.9}\right)^{0.8} \times 900 = 4,730 \text{ cfs}$$

McLeod River at Embarras River D.A. = 1,000 square miles

100-year flood = 34,000 cfs

- Corresponding 100-year flood at Cadomin

$$= \left(\frac{87}{1000}\right)^{0.8} \times 34,000 = 4,820 \text{ cfs}$$



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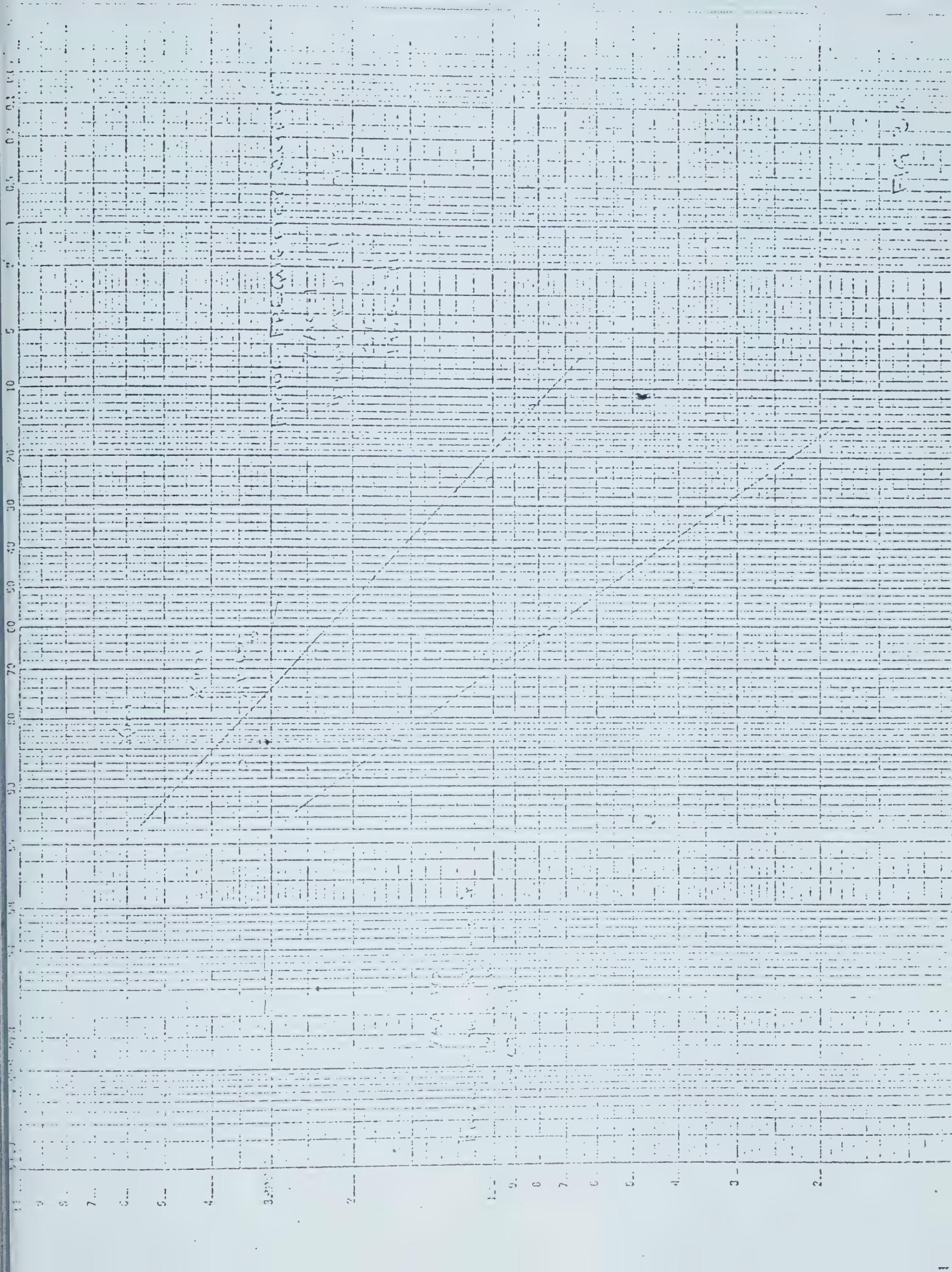
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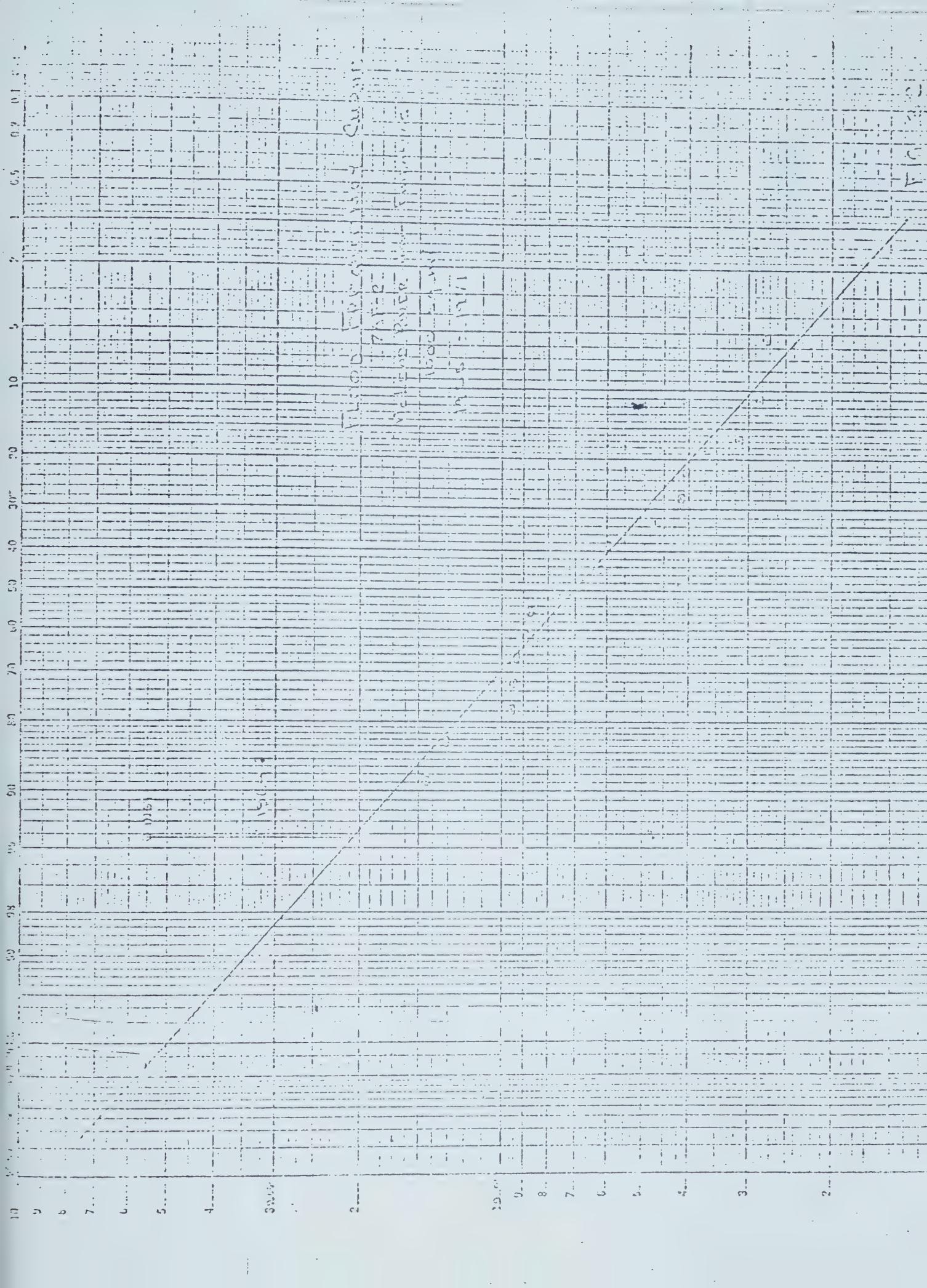
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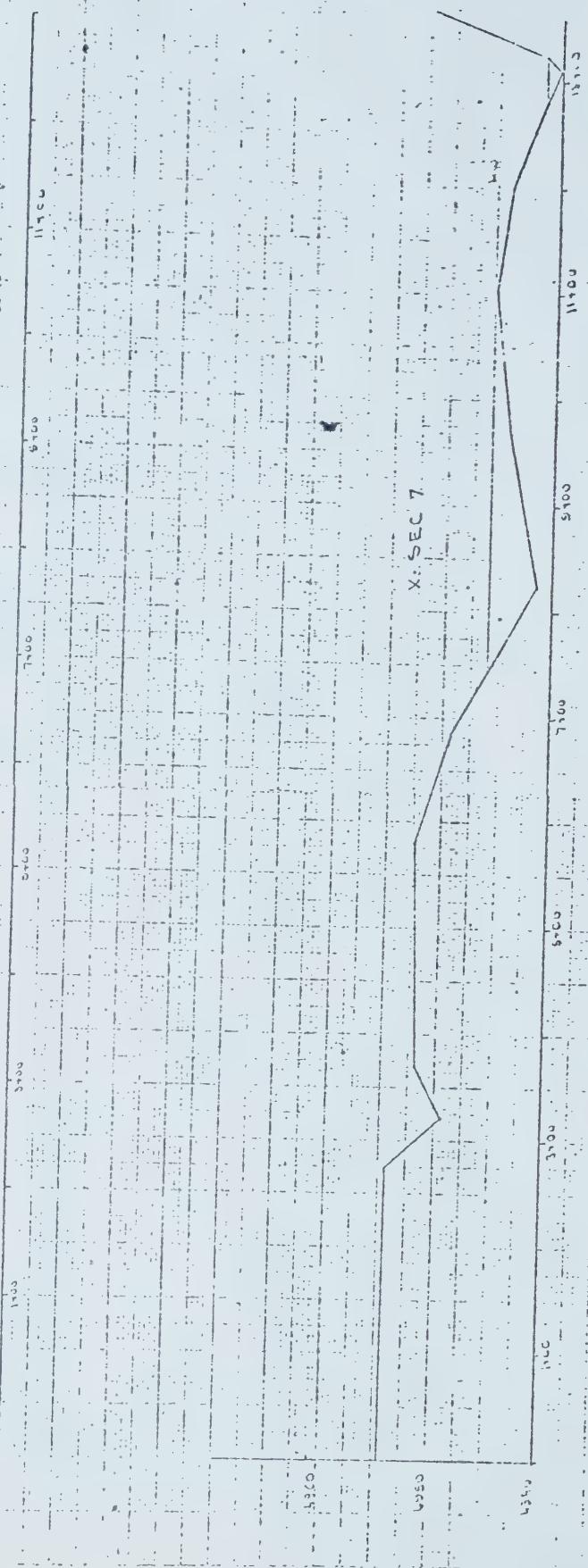
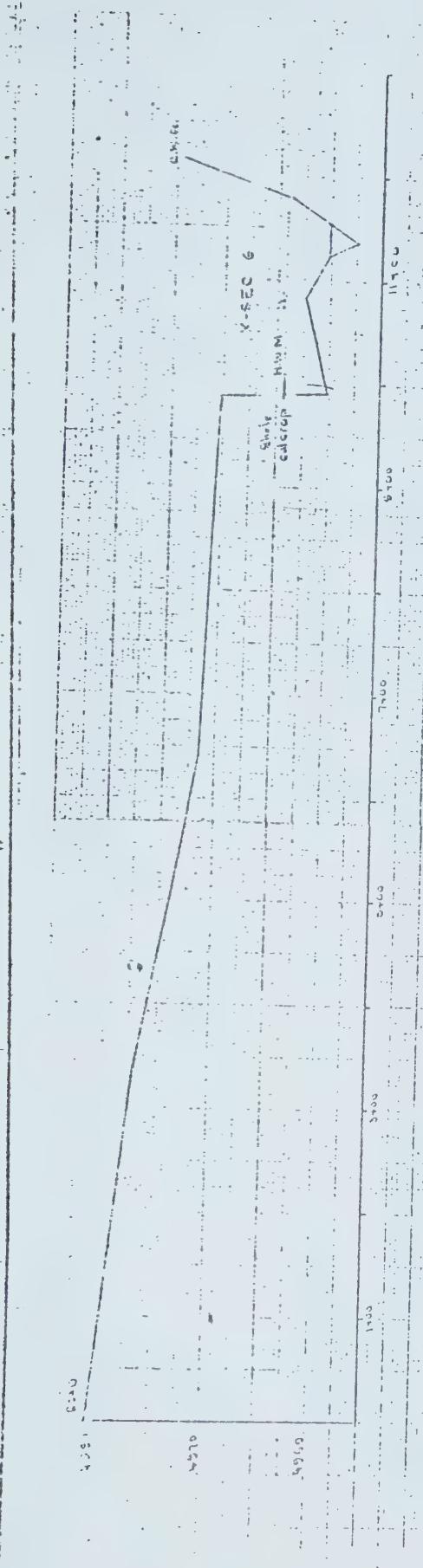


Fig. 2 B  
Diagram of the circuit.

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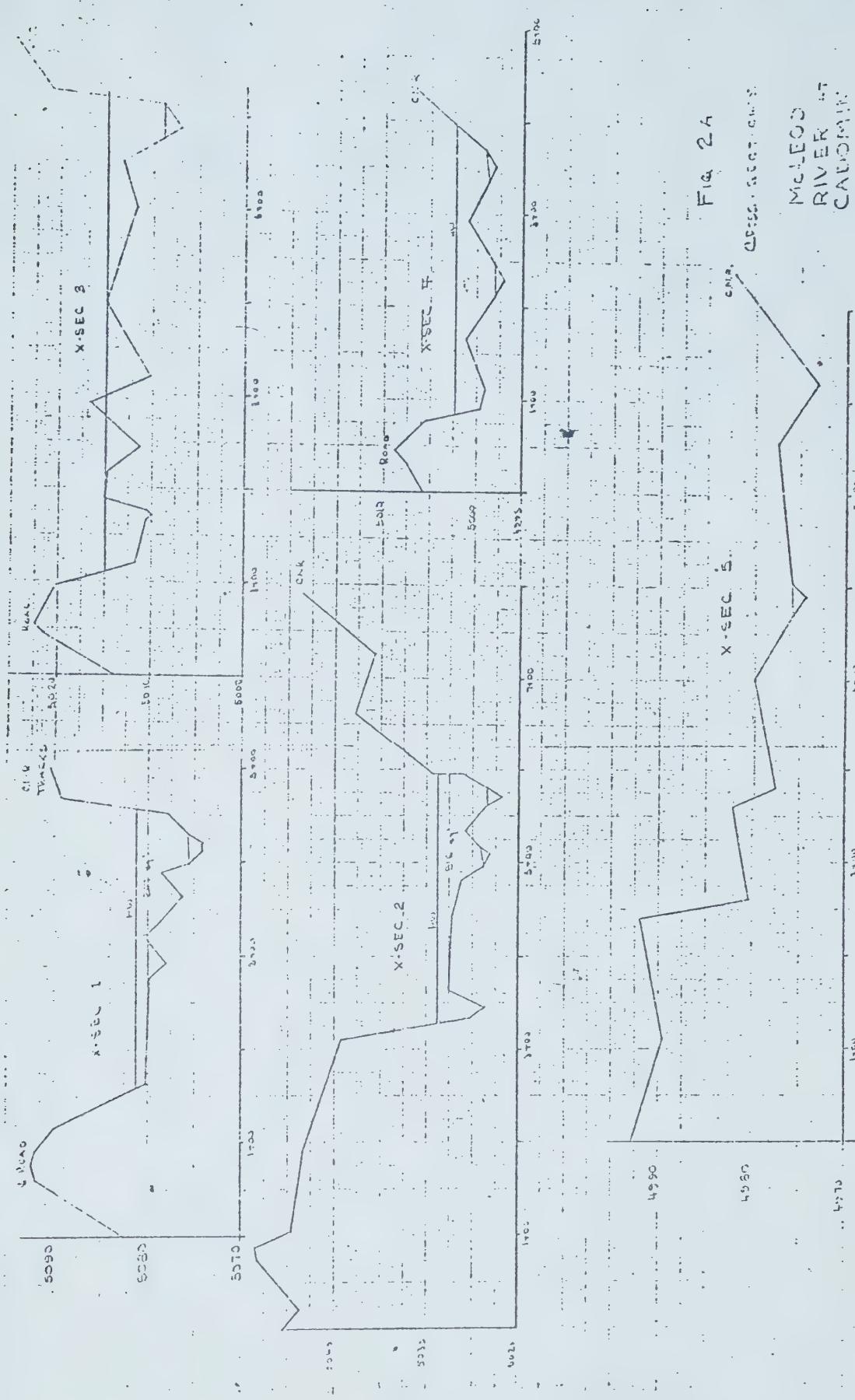


Fig. 24

MICLEO RIVER CALIFORNIA

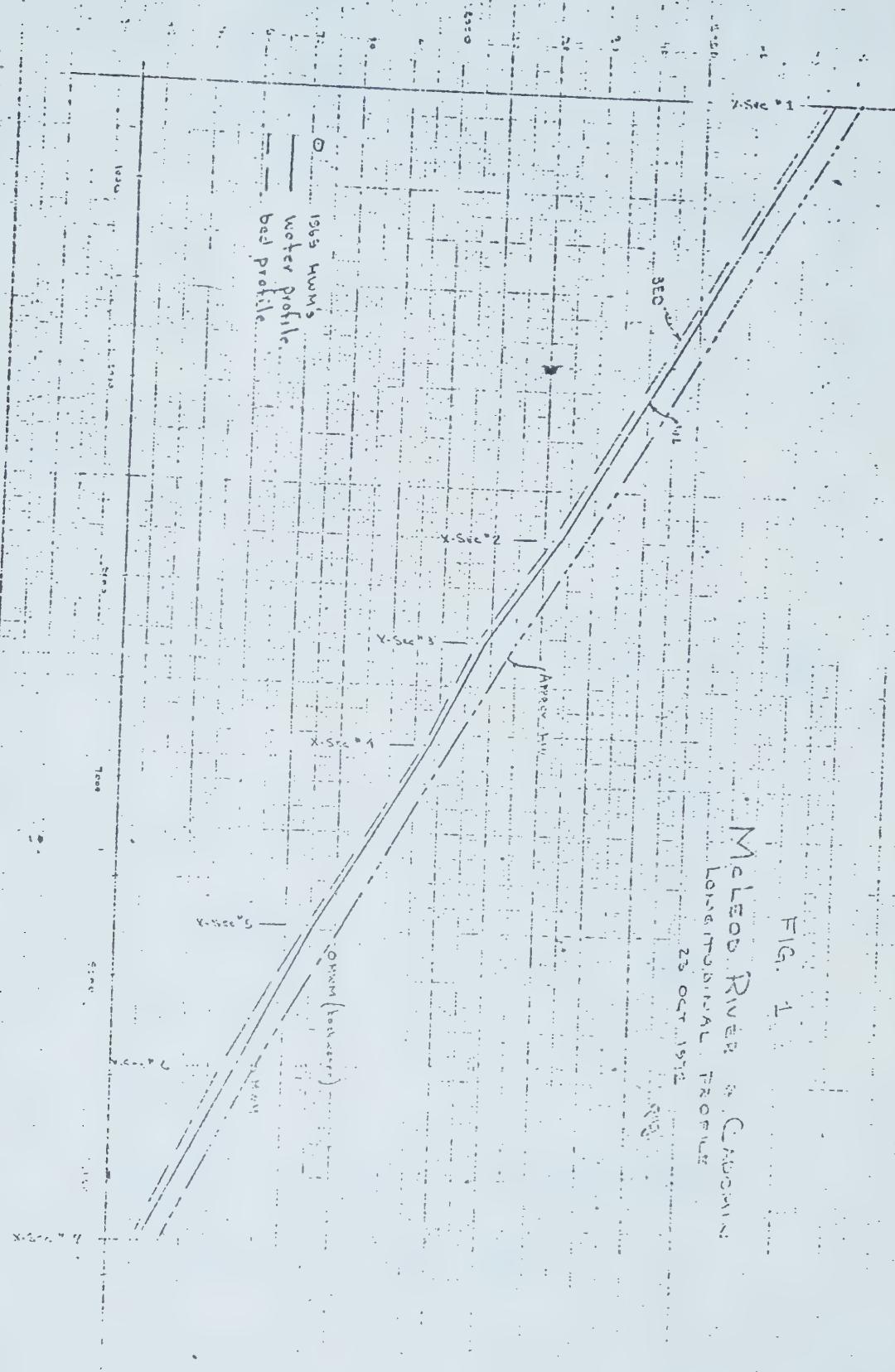
CANONICAL



FIG. 1

McLEOD RIVER & CHANNEL  
LONGITUDINAL PROFILE

23 OCT 1912





## APPENDIX E

## DEPARTMENT OF THE ENVIRONMENT



## WATER RESOURCES DIVISION

MEMORANDUM

OUR FILE NO. 83 F/2

FROM: R. E. Bailey, P. Eng.  
Director

YOUR FILE NO.:

TO: J. Markovich  
Branch Head  
Special Land Use Branch  
Lands Division  
Department of Lands and Forests

DATE: August 21, 1972

Re: Lower Robb  
NW $\frac{1}{4}$  11 and SW $\frac{1}{4}$  14-49-21-W5

Further to your memorandum of February 9, 1972 the Water Resources Division has reviewed the situation at Robb, and recommends against any further development within the floodplain of the Embarras River, for the following reasons.

1. This area is on Crown land and adjacent to the Embarras River; therefore, in this case and in all others, the Watershed Protection Guidelines as adopted by the Conservation and Utilization Committee and the Natural Resources Co-ordinating Committee, apply. These guidelines provide protection against flooding, for the management of the water body and the conservation of the resource. Development of the type proposed should be restricted to those areas outside the protection zone. The protection zone on the Embarras River (incised 50-100 feet) is a minimum of 150 feet inland from the river break.

The Water Resources Division, Department of the Environment is not in favor of:

- (a) the disposition of Crown lands to private individuals within Watershed Protection Zones.
- (b) the location of development such as this (i.e. residential) in these zones.



2. It is estimated that bankfull discharge on the Embarras River has a return period of only four to five years. A 100-year return could exceed 15,000 cfs on the Embarras River at Robb. This estimate is not considered to be highly accurate; however, the fact that it is several times larger than bankfull discharge (estimated to be 3000 cfs to 4000 cfs) confirms the flood-prone character of the site. None of the floodplain of the Embarras River at Robb is particularly suitable for the location of permanent buildings.
3. In this particular case, due to the flood hazard, it is not recommended that expiring leases be renewed.

R. E. Bailey, P. Eng.  
Director  
Water Resources Division

WH: lab

c.c. A. Strome

1962 11 30 9:11





